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ABSTRACT

Three microteaching formats were compared: microteaching with peers, microteaching with university freshmen, and microteaching with high school pupils. Thirty social studies methods students were assigned to one of the three formats for six experiences. Each experience included periods of instruction and practice. Assessments were made at the end of microteaching by a panel of graduate assistants using the Illinois Teacher Performance Appraisal Scale, and at the end of student teaching by pupils using the Illinois Teacher Evaluation Questionnaire. Significant differences at the completion of microteaching favored peer teaching, but microteaching with high school pupils was associated with superior performance at the end of student teaching. It appears easier to obtain desired training effects through peer teaching, but these effects do not seem to transfer to student teaching. (Author/RT)

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The Effectiveness of Three Microteaching Environments in Preparing Undergraduates for Student Teaching[1]

by

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The Problem

Microteaching has been much praised and has found wide acceptance as an experience component in the program of teacher education. Microteaching is generally defined as "a scaled-down sample of teaching" (Bush and Allen) and the scaling down typically occurs along the dimensions of time and size of class.

Just how much the sample of teaching is scaled down or who is taught varies greatly. Bush and Allen speak of a lesson between five and ten minutes in length and classes of "up to 5" in number. Others have described microteaching programs that utilized longer periods of time (Goodkind) and larger groups.

These differences are easy to reconcile by considering the teaching behavior to be learned. Usually, it does not take a long period of time to practice the introduction of a subject and just as obviously it takes a longer period of time to sustain inquiry through the use of open ended questions. Similarly, one would like a larger group to practice with an inquiry discussion which places emphasis on gaining crossfire between pupils than for the less complex task of introducing a topic. Preferred group sizes and length of a practice period can then be logically related to instructional goals.

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Just as logically one would expect the microclass to be composed of learners comparable to those whom the practicing student ultimately intends to teach. We find, however, that many microteaching programs utilize peers as microclass learners. That is methods students practice before one another (Davis, et al., Webb, Baird, Belt and Holder; Goldthwarte and others) or before university freshmen (Johnson, b). All report favorable results.

The original Stanford project (Bush and Allen) and the Indiana State University program (Mayhugh) were conducted during the summer when large numbers of school age children were available. The Texas (O. L. Davis, et al.) and Illinois (Johnson) programs are part of undergraduate teacher education programs conducted during the regular school year while school age children are in school.

There are also cost factors. Peer teaching is inexpensive and easy to administer. An instructor need only take his class to the microteaching facility, organize it into groups of appropriate size, designate critiquers, and swing into action. University students are more expensive as they are paid and can only work during non-class hours which requires matching of senior and freshmen schedules, but this was found to be easier at Illinois than recruiting and transporting high school age students from the local schools.

The basic problem is an essential one of costs and benefits. Peer teaching is inexpensive and administratively simple; the use of university freshmen is costly, but manageable, and the use of secondary age pupils after school is costly and difficult to manage. The real question relates

to the value of the training received. Can one be as well prepared to teach in the secondary schools through peer teaching as by teaching high school age children? If peer teaching is as effective, or nearly as effective as microteaching with school age children, considerable savings could be effected.

This study was designed to compare the effectiveness of microteaching practice in three environments (peer, university freshmen, and high school juniors) as preparation for secondary student teaching. Effectiveness was judged in terms of the averaged ratings by trained evaluators of video recordings at the beginning and at the end of microteaching, and the averaged evaluations of the teachers' pupils during student teaching. It was hypothesized that students practicing with high school age children would do better than those who practiced with one another and that the group which practiced with university freshmen would fall someplace in-between.

Procedure

A sample of 31 social studies methods students was administratively selected from the total population of 69 enrolled for the fall semester of 1969. The sample was limited by the number of high school age pupils available for use as microclass pupils. The scheduling of students for microteaching was governed by the students' study schedules and assignment of students to treatment groups was arbitrary. Students who had early microteaching assignments participated in peer teaching or taught microclasses made up of university freshmen. Teachers having late assignments, i.e., 3:30 P.M. and later, taught microclasses made up of high school pupils. Analysis of variance of averaged evaluations of video recordings

of the sample's first practice session produced no significant differences between practice treatments. ($F = .02$; $df = 2, 26$).

Each week all social studies methods students were instructed in a teaching technique during a regular period of their methods class. All received the same instruction on the same techniques in the same order of presentation. All methods students not in the sample practiced the techniques with microclasses of university freshmen. The methods students were instructed in and practiced six techniques during the seven weeks prior to student teaching.

Video recordings of the first and last microteaching practice periods for each of the students in the sample were obtained. These were evaluated by a panel of three graduate assistants after the completion of the on-campus portion of the student teaching semester. The evaluators used the Illinois Teacher Performance Appraisal Scale (TPAS) as a basis for their ratings.

The TPAS instrument consists of ten seven interval scales. The scales cluster around two factors: lesson organizations and pupil involvement in the lesson (Johnson, a). The instrument was especially developed for use in the evaluation of microlessons. The evaluators trained on tapes from non-sample social studies microteachers. They attained a level of interrater reliability of .77 and .80 for the first and sixth microlesson as determined by analysis of variance procedures described by Winer (p. 131). The total collection of tapes was randomized for evaluation.[2]

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2. The investigators would like to acknowledge the services of Mr. David Kirkton, Mr. Wally Dralle, and Mr. Don Ryoti who evaluated the tapes and Dr. Ming Chang who supervised the evaluative procedures.

During the fifth of six weeks of student teaching, pupil evaluations of the sample were obtained by trained graduate assistants of the Teaching Techniques Laboratory. They used the Illinois Teacher Evaluation Questionnaire (ITEQ). The ITEQ instrument was designed for the evaluation of secondary teachers. It is made up of 40 questions which are answered as agree or disagree with two levels for each judgment. The ITEQ instrument includes four factors: teacher, teacher competence, interest in class and teacher attitude. ITEQ reliabilities are computed by the split-half method by class (Mahan). Estimates of reliability ranged from .57 to .96 with .78 as the median estimate.

Findings

Averaged TPAS evaluations of video recordings of the first and last (sixth) microteaching practice periods were grouped by treatment for analysis of covariance as suggested by Campbell and Stanley (p. 193). The evaluation of the initial tape served as the covariant. The procedure used employed a step-wise multiple regression with ANOVA analysis of adjusted scores. The results of this analysis produced non-significant differences across treatments ($F = 2.44$; $P. < .11$).

Since the averaged evaluators of the first and last tapes were not significantly correlated ($r = .11$; $p. < .57$) simple one-way analysis of variance was performed on averaged evaluations of final microteaching recordings after the fashion described by McNemar (pp. 266-267). The results are summarized in Table One.

TABLE 1

Analysis of Variance of TPAS Evaluations of
Final Video Recordings of Microteaching Practice

Source	SS	df	Var.	F
Between	206.50	2	103.25	2.35 (ns)
Within	1,011.03	23	43.95	
Total	1,217.5	26		

The results of the simple analysis of variance were comparable with those of the covariance analysis and revealed no significant differences across treatments.

Simple analysis of variance of ITEQ scores obtained during the fifth week of student teaching was also performed. The results are reported in Table Two.

Table 2

Analysis of Variance of ITEQ Evaluations
by Pupils During the Fifth Week of
Student Teaching

Source	SS	df	Var.	F
Between	.30	2	.15	7.50
Within	.77	28	.02	
Total	1.07	30[a]		$.01 > p \leq .001$

a. The differences in degrees of freedom between Tables 1 and 2 are due to recording failures during the last week of microteaching.

The analysis presented in Table Two produced highly significant differences which leads us to an examination of the means of the treatment groups which are presented in Table Three.

Table 3

Means and Cell Size for
Treatment Groups During Microteaching and Student Teaching

Group	High School		Peer		U. Freshmen	
	m	n	m	n	m	n
1st M/T	38.27	12	39.08	11	38.52	6
6th M/T	37.44	11	43.61	11	41.70	5
5th S/T	3.08	12	2.85	11	2.98	8

That the groups were comparable at the beginning of practice is readily apparent from the treatment means which are a few tenths one side or another of 38.8, the group mean. At the end of six weeks of practice the group that practiced with peers appeared to the panel of trained evaluators as superior to both of the other groups. Interestingly, the group that practiced with high school juniors was seen as less skilled after six weeks of microteaching practice whereas the other groups were perceived as having improved. We have already seen that these perceived differences were not statistically significant (Table 1).

The situation appears very different during student teaching, however. ITEQ evaluations by high school pupils during the fifth week of student teaching clearly favored the group which had practiced with high school pupils during microteaching while the peer practice group received

the lowest evaluations. As we saw from the analysis presented in Table 2, these differences were highly significant. In each case the group which practiced with university freshmen received intermediate evaluations.

Conclusions

The results call into question the wide spread practice of substituting peer teaching for microteaching with children comparable to those anticipated in student teaching. The charms of peer teaching are seductive. Peer teaching can be done during class time without elaborate administrative arrangements and with what appears to be good results. Unfortunately, the apparent results do not appear to survive the rigors of student teaching. From these data, the substitution of university freshmen for high school age pupils appears to be reasonable, albeit only a substitution. The old studies on transfer training appear to be sustained by these results. (McDonald, p. 278f.).

Any study that involves as many people and that carries over as much time as this one did stands a better than average chance of going awry. One cannot claim a representative sample not that the sample was randomly assigned to treatments. The instruments used involved judgments. Even when the judges are trained and their judgments averaged, there is much room for error. As with most studies, replications are needed, but with studies of this variety, the need for replication is even greater.

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